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FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

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HIGHER DEGREES.

The first examination for the Public Health Degree is to be held at Edinburgh this month. It is hoped that ultimately this degree will become indispensable to the veterinarian specialising in Public Health work. Time will tell whether it is more successful in attaining this object than the Fellowship Degree has so far been in fulfilling an analogous though wider one.

The Fellowship Degree has now been established more than forty years. The intention of its founders was that every member aspiring to rise above mediocrity should use it as a stepping-stone to success. We all know that the Degree has fallen short of fulfilling expectations in this direction; and its failure has become more evident in late years. Further, the revision of its regulations, which, it might have been hoped, would popularise the Degree, seem to be having rather the opposite effect. At the two Fellowship examinations last year there were six candidates, four of whom passed. At the one examination held so far this year there were five candidates, and four passed. We were accustomed to see better figures before the war, under the old regulations.

Perhaps the most serious sign is that members generally seem to feel so little interest in these Degrees. A certain indifference to the Public Health Degree, which is only intended for specialists, may be natural in general practitioners; but that the same indifference should be extended to the Fellowship Degree, which is open to every member, is rather surprising. The existence of the indifference is plain enough. The revision of the Fellowship regulations, over which the Council took no little trouble shortly before the war, and which considerably altered the conditions of the examination, was accomplished with little or no comment from the profession. No one knows whether those members who have taken the trouble to understand the new regulations think them an improvement upon the old ones or otherwise. The probability is that very few have thought over the question at all.

Is it not time that we took some interest in our higher degrees? One result of doing so might well be to bring the Fellowship Degree nearer to a realization of the intention of its founders than it has ever yet been. It might also prevent the Public Health Degree, which, though narrower in scope, is of almost equal importance, from falling into neglect like the Fellowship. No profession can afford to ignore its higher degrees, as we seem in danger of doing.

ELECTION TO COUNCIL. A CORRECTION.

In our issue of last week, p. 575, Members elected: For Mr. Dunstan 507, read Mr. BUXTON 507.

AN AUTOCRATIC DECISION.

HORSE-BREEDING ACT, 1918.

Recently I was called to examine the Clydesdale Stallion "Raeburn", which had previously been rejected for Stringhalt by one of the Board of Agriculture examiners, under the Horse-breeding Act, 1918. I examined the horse carefully on several occasions and could find no evidence of the disease being present; and as the owner intended to lodge an appeal under Section 4 of the Act, I advised further examinations by other 3 veterinary surgeons. These three gentlemen pronounced the horse sound and the appeal was lodged. A referee was then appointed by the Board to examine the horse, and, as a result of his report the owner was notified that the Board could not grant a licence.

Now, I submit that where there is such conflict of opinion as in this case, equity is not obtained by vesting in one individual autocratic powers, enabling him to set aside the veiws of any number of other veterinary surgeons, and on his own responsibility to settle the future of a valuable horse. In such a case as this a reasonable decision could only be arrived at by the Board hearing evidence from both sides before giving judgement.

It would be interesting to know from the referee—whom I don't know—after an examination, how he arrived at the conclusion that "Raeburn" was affected with Stringhalt. Perhaps he would favour the writer to that extent through the medium of your journal.

Rutherglen, 2nd June. JOHN CAMPBELL.

THE TOXICITY AND METHOD OF UTILISATION OF ALIMENTARY PROTEIDS.

M. E. Maignon has reported some experimental work upon this queston to the Academy of Sciences. The dog, which is naturally a carnivorous animal, accomodates itself to a purely proteid diet much better than the white rat. The variations in toxicity of the same proteid for different species of animals seem to be related to the degree of faculty which each species possesses of transforming the proteid into fat. Casein is much more toxic for the dog than for the rat, because the dog transforms it into fat with much more difficulty than does the rat, as is shown by the absence of fatty overloading of

the liver. These facts confirm the part which fats appear to play in the utilisation of nitrogenous materials.

Fats diminish the toxicity of albuminoids, and augment their nutritive power. With fat, the necessary minimum of albumen is about three times less than with starch. The ration which assures the fixity of weight is higher if it is composed of albumen and starch than when it is a mixture of albumen and fat. The difference is in the proportion of 5 to 4, the rations being expressed in calories. Experiments upon the rat show that albumen is better utilised with fat than with starch. In the utilisation of proteid materials, fats therefore play an important role, which carbo-hydrates are unable to fulfil.

From the therapeutic point of view, fatty bodies may be considered as qualitative modifiers of nutrition. It would be interesting to methodically study their effects in all affections connected with nitrogenous intoxication,—(*Journal de Méd. Vét. et de Zootechnie*).

GASEOUS CYSTS OF INTESTINE AND PERITONEUM.

This lesion in the human subject exactly resembles a very frequent lesion of the pig, which is known by the name of *mesenteric emphysema*. The pathogenesis of the porcine lesion is still doubtful, and it may be of the same nature as the human affection.

The human disease is a chronic affection of the abdomen, very difficult to explain in its pathogenesis, and equally singular in its course. Cystic formations may develope in the thickness of the wall of the gastro-intestinal tract and of the peritoneal serous membrane. These cysts, whatever their number—and they may sometimes be counted in hundreds—range from the size of a pea to that of a mandarin orange. They contain, not liquid, but gas.

Letulle and Tuffier have examined for cases of this singular disease, and have been able to establish some details in its histology, which seem in a meaure to explain the pathogenesis of the gaseous cysts. The first fact which their research has established is that the starting point of the cystic formations is an obstruction to the course of the lymph, a chronic obliterating lymphangitis. All cysts, wherever situate, are constantly derived from a cicatrix; and this cicatrix is certainly a lymph vessel which has been obliterated, sometimes for a long period. The source of the gas is unknown and much discussed. Histological examination of the cystic wall seems to furnish some explanations. It shows that they are wholly constituted of dense sclerosed fibrous tissue, poor in nutritive vessels. It also demonstrates the existence of an old chronic inflammatory lesion, and therefore justifies the hypothesis of an infective agent as the etio-pathogenetic base of the gaseous cysts. (Ostertag has already put forward this hypothesis with regard to the cysts of the pig).—(*La Clinica Veterinaria*).

W.R.C.

NATIONAL VETERINARY MEDICAL ASSOCIATION

ROYAL COUNTIES DIVISION.

A general meeting was held at "Ye Olde Red House," Bond Street Bath, on Friday April 30th, when the President, Mr. W. T. D. Broad, presided; there were also present Messrs. J. H. Baxter, G. P. Male, (Hon. Treas.), P. J. Simpson (Hon. Sec.), J. C. Coleman, Major Seldon, J. H. Parker, J. Basil Buxton, Capt. W. N. Jürgenson, and Messrs. H. Russell Allen, T. H. Pettifer, C. E. Perry, J. R. Hewer, R. Porch, W. A. Welch (Visitors).

Apologies at inability to attend were received from Major H. G. Lepper, Mr. T. W. Lepper, Major R. Catmur, Mr. H. A. MacCormack, Capt. Rees-Mogg, Mr. F. Bazeley, Mr. F. Willett, Capt. Jelbart, M.C., Mr. G. E. King, Mr. P. Lloyd, Mr. J. McKerlie and Prof. Brayley Reynolds, Mr. Verney.

Mr. COLEMAN proposed that the minutes be taken as read, and asked that a fuller report be published in *The Record* in future. A great many items he particularly wished to go to the notice of the veterinary profession were omitted.

Maj. SELDON seconded the adoption of the minutes which were then passed.

The SECRETARY mentioned that he had written to Mr. J. Donaldson Pottie who had replied thanking him for his letter and 'also for placing my letter before your members as it will strengthen our profession generally and mutually."

He had also written to Mr. G. E. King expressing the members sympathy at the cause of his absence, and Mr. King had replied: "Will you please convey to the members my grateful appreciation of kind message of sympathy . . I am thankful to say I am getting stronger but it is a very slow business."

Mr. J. W. Brittlebank wrote: "Many thanks for your letter intimating the names of your representatives on the Council N.V.M.A. I am afraid however that by the rules you can only have the three representatives until you can bring your membership up to 75, which I hope you will be able to do soon. I wrote at some length to Mr. Male last night re organising the Southern Branch and besides the questions of the resolutions of Council I am asking for all to take in hand the Milk and Dairies (Consolidated) Bill, 1915 and the final report of Lord Astor's Committee, as I think there is much which requires the attention of the N.V.M.A. It would have been premature earlier, as they have not yet started to frame the Orders and it is these particularly which will affect us."

It was decided, on the proposition of Major Seldon seconded by Mr. Male, to discuss the question of Lord Astor's Committee and the Milk Bill at the next meeting.

Mr. E. WHITE WALLIS, Secretary the Royal Sanitary Institute, Bath, wrote expressing his thanks for the communication notifying the appointment of delegates to the forthcoming Congress in Birmingham, and Major F. C. O'Rorke wrote saying he would have great pleasure in allowing his name to remain on their list of members as an honorary member during his tour of foreign service.

Mr. FRED. BULLOCK, Secretary, Victoria Veterinary Benevolent Fund wrote saying he saw they had agreed to accept a collecting box for the Benevolent Fund and was sending them one. [The box was placed on the table at the meeting and also handed round.]

Mr. Fred. Bullock, Secretary, R.C.V.S., wrote saying he would give, as soon as he could ascertain them, the names of the M.P. representing their district who were on the Standing Committee B, to which the Veterinary Surgeons Act Amendment Bill had been committed.

Mr. COLEMAN proposed that the letter be sent to the Member of Parliament who is on the Standing Committee. Mr. Male seconded and it was carried.

A letter was read from the Central Veterinary Association of Ireland concerning increased fees and on the proposition of Mr. Male, seconded by Capt. Jürgenson, the following resolution was passed :—

That although the terms do not apply to England we sympathise with them in their endeavours to obtain increased fees and, if we can we will support them and have much pleasure in doing so.

The PRESIDENT proposed that a letter be sent to the Secretary of the new Society to be called the Mid-West, as they were a neighbouring Society, with their hearty wishes for good luck, expressing the hope that the Society would prosper.

The SECRETARY seconded and the resolution was heartily agreed to.

New Members. Mr. S. H. PETTIFER of Malmesbury, was nominated as a member by Major Seldon.

The Secretary seconded and proposed the name of Mr. W. R. KENNEDY of Kingston-on-Thames. Mr. Male seconded.

The SECRETARY said both those nominations came in to him a fortnight before the meeting. They were accordingly elected, as also were the following :—

Major R. CATMUR, M.R.C.V.S., proposed by Mr. G. E. King, seconded by Mr. J. Willett.

Mr. J. R. HEWER, M.R.C.V.S., by Mr. J. H. Baxter, and Mr. G. P. Male.

Major E. E. JELBART, M.C., M.R.C.V.S., by Mr. G. P. Male, and Mr. R. J. Verney.

Mr. MALE said there were three distinguished members present from that locality and he would be delighted to propose them as members if he might be allowed to do so. The members of the Royal Counties came to Bath, thinking they had no Society, to offer them the hand of fellowship. They were delighted that they had formed a society of their own; at the same time they would be very pleased if they joined the Royal Counties.

Mr. PERRY thanked Mr. Male for his kind expressions towards the new Society. Already they had 40 members and hoped to have 78 before their next meeting. He was afraid he could not join the Royal Counties as he was already a member of the Western Counties.

Mr. WELCH also thanked Mr. Male for his kind words but asked them to defer making him a member of the Royal Counties for the present.

Mr. PORCH said how pleased he was to be amongst them. Years ago he was a member of their Society and once occupied the presidential chair. He hoped they would defer electing him a member of the Royal Counties for the present, as he wished to give all his time and attention to the new Society. He suggested an interchange of members between their Society and his, so as to make them two strong Societies.

JOINT MEETINGS.

The PRESIDENT, one of the delegates to the Southern Counties V.M.A. meeting, said he gathered from the meeting that they were unanimously in favour of the idea of having joint meetings with the Southern Counties and South Eastern. The Secretary would read the resolutions passed in order to have a basis to work upon, and he hoped the South Eastern and Royal Counties would also pass them. Mr. Livesey had spent an enormous amount of time and trouble in bringing those resolutions to a head. On those lines of business they had a nucleus for power and strength by which to carry the whole opinion of the veterinary world.

The SECRETARY said he was present at the meeting not only as a delegate but as a member of the Southern Counties. The Southern Counties took up those resolutions and passed them right away through ; they were whole-hearted about the scheme. He proposed "That this meeting of members of the Royal Counties approve of the principle of holding joint meetings with the Southern Counties Veterinary Association and with the South Eastern Veterinary Society."

This was seconded and agreed to, and it was decided to forward the resolution to the Southern Counties.

The Secretary then read the resolutions passed by the Southern Counties :—

1. "That this meeting of members of the S.C.V.S., together with delegates from the R.C.V.M.S. and the S.E.V.S , approve the principle of holding joint meetings of the three Societies."

2. "That the three Societies collaborate for the following objects :—(1) Create and strengthen unity of thought and action among members of the veterinary profession. (2) Political, social, scientific welfare of our profession. (3) Strengthening and improving the status of the three Societies. (4) The protection of the interests of the general practitioner and veterinary inspector.

3. "That a Joint Council be constituted for the following purposes :—(*a*) To carry out the objects already defined. (*b*) To act as a link between the three Societies. (*c*) To arrange for the periodical holding of joint meetings. (*d*) To consider and advise upon any subject referred to it. (*e*) To take such immediate action as it may deem necessary and expedient on behalf of all three Societies. (*f*) To advise and assist members who are in trouble or in need of help." (Not financially).

4. "That the Joint Council consist of the President and Secretary and four members of each constituent Society together with a joint Secretary."

5. "That at least three joint meetings be held annually under the auspices of each Society alternately ; that a joint annual dinner be held in London in December : and that the first joint meeting be held in June, 1920." (or July, or about that time).

6. "That Capt. G. Rees-Mogg be appointed Joint Honorary Secretary until the Joint Council has been formed.

On the proposal of Mr. Buxton seconded by Capt. Jürgenson, resolutions Nos. 2 and 3 were adopted provisionally.

Resolution No. 4. Mr. Buxton proposed that "our representatives on the Joint Council consist of the President, Secretary, and four members." Mr. Male seconded, and it was agreed.

The four representatives of R.C.V.M.S. on the Joint Council were chosen : Mr. Male, Mr, Buxton, Mr. J. Coleman and Mr. J. Willett.

Resolutions Nos. 5 and 6 were agreed.

The Secretary read the following letter from Professor Brayley Reynolds :—

Dear Major Simpson,—I regret to say I shall not be able to be present at the Royal Counties meeting at Bath on the 30th inst. I regret this more since the question of holding conjoint meetings of the South Eastern, Southern Counties and Royal Counties Associations comes up for discussion and decision. It is a question upon which I feel strongly, and I trust that no decision will be come to without due consideration.

I was as you know a visitor at the last meeting of the Southern Counties at Red Lion Square. If, as we were told by Mr. Livesey at the last meeting of the Royal Counties, the consideration of this question had only taken the form of an informal conversation following the December meeting of the Southern Counties Association, then the various resolutions proposed at their March meeting would appear to have been passed with remarkably little discussion.

It is a debatable point whether the combining of the three Societies for the purpose of holding joint meetings will be successful in improving the attendance and discussion at these meetings. One of the chief causes of non-attendance is the genuine inability of many practitioners, especially those who are single-handed, to spare the time to be away from their practices. To those to whom the places of meeting are not very accessible the extra time they are compelled to be absent is a matter of great importance, and often decides their non-attendance. By holding joint meetings distances will be increased, and the presumption that some of the now regular attendants of local meetings will not be able to attend so regularly at such meetings is not a groundless one. On the other hand should attendance at the combined meetings be improved, may it not be at the expense of local meetings? For the number of meetings per year will be increased, and just as some veterinary surgeons cannot go too far, they are unable to go too often.

Another cause of non-attendance is a lack of enthusiasm for, or even a degree of disinterestedness in, the well being and unity of the veterinary profession. A marked improvement in this respect will have to take place if the joint meetings are to be a success; and if possible for these, then why not for the local meetings? It will be admitted there are signs of an awakening interest in the veterinary profession. If this feeling be fostered there should be no trouble to obtain more members of local Societies, and no trouble in persuading already existing members to become more active members. The recent decision to form a Mid West and South Wales Veterinary Association is a proof of the healthier and more active interest taken by individual members in the profession as a whole. And, in connection with this new society the question arises, will it too be asked to join hands?

As far as the suggested better results from conjoint action in connection with administrative work is concerned, why not make use of the already existing Southern division of the National, and turn this into more active machinery? I believe I am right in stating that power already exists for calling a meeting of all affiliated societies in the Southern area.

I am afraid I have written at some length, but though I belong to that class in the profession which is supposed to be out of touch with the general needs of the profession from a practitioner's point of view, I am none the less sincere in my wishes for nothing but its well-being. —I am, Yours faithfully,

E. BRAYLEY REYNOLDS.

Camden Town, N.W.
27th April.

Mr. COLEMAN said that since the question of joint meetings had been mooted he had had a chat with Col. Brittlebank; while he (the Colonel) approved of the friendliness between the Societies he agreed that the National was making a very strong attempt to be the representative of the profession, and he thought with him (Mr. Coleman) that the object would be more in unison if carried out by a body like the National than by a conglomeration of individual Societies. He (Mr. Coleman) approved of the idea of joint meetings of the Societies for scientific purposes. He thought it was up to them to support the National. They were a real live Society now if only given the work to do. He strongly opposed the amalgamation of Societies for political purposes, but for scientific purposes he agreed with the idea.

Mr. BUXTON said he had an immense respect for Mr. Coleman and his advice on matters veterinary, but he thought he was wrong when he attempted to draw a strict line of demarcation between scientific and political subjects. The very last thing the amalgamated Council would do would be to rush through any political move without advising the Council.

The SECRETARY said it was all very well for the National Association to jump in after someone else had moved. It was the first man who was the live man. The National had been in existence for years and years, but where had they once attempted to make a real forward move such as was attempted to be made on the present occasion? As Mr. Buxton had said, the idea was not that of doing underhand political work but of trying to get those strong associations to put up real good meetings, to back each other with regards to financial matters, if necessary, and to get good demonstrations at their meetings. They would also cement friendship with the two associations as a whole and between the individual members. They could also help in many ways the members of the profession, and get into closer touch with them than through the National.

Mr. COLEMAN agreed that up to now the National had done nothing for them, but in Col. Brittlebank they had a real live man who had plenty of support and his views were practically the same as theirs. It could come better from one head than from a lot of smaller ones. Unity was power to-day.

Major SELDON asked if it were a fact that by their joining with the Southern Counties and the South Eastern the National would of necessity die? Could not the National go on on its own lines as before—doing nothing?

Mr. MALE said they were under a little misunderstanding. He did not think the proposal was antagonistic to the National in any shape or form. Personally he thought it would help the National, because it would make the societies keen and energetic, and look out to see what good work they could do for the profession. It would also help from a scientific point of view by getting good operators, and all that sort of thing. Like Mr. Coleman, he had great faith in the National, and thought that before very long they would see a very great rejuvenation in the National, which would become a great society for the good of the profession. But that should not prevent them joining up with other societies and having conjoined meetings. The only objection was the one Professor Brayley Reynolds made, that there would be a tremendous number of meetings to attend. There would be their four meetings a year. One of them would be a joint meeting and then there would be two others for one of which they would go to the Southern Counties, and the other to the South Eastern. That would really make, with the dinner—seven meetings a year.

The SECRETARY: There will be three meetings and a dinner. One of our meetings will be taken up by the joint meeting. Our other three meetings will run on.

Mr. MALE: Yes, seven with the dinner. It is rather a lot for busy people. But no one can object to the joint meetings.

Capt. JURGENSON proposed that the next meeting be held at Aldershot.

Mr. Male seconded saying he thought it was a very good suggestion.

The PRESIDENT mentioned that Mr. Buxton had put up for membership on the Council, and they could not do better than vote for him. He was engaged in original research and would be a very valuable member on the Council. He hoped all would bear him in mind when they gave their votes shortly.

THE PREPARATION AND USE OF VETERINARY VACCINES AND SERA.

J. B. BUXTON, F.R.C.V.S., D.V.H.

Mr. President and Gentlemen—I make no apology for the elementary nature of the remarks which I am about to make concerning the preparation and use of vaccines and sera for veterinary purposes. A very strong element of empiricism still exists in so far as the general application of these preparations is concerned, and also, I

fear, in the dosage employed. There can be no greater error than to assume on exalted specificity and a definite and miraculous effect as a result of their use. In the great majority of cases they can be regarded only as highly valuable adjuncts to a reasonable amount of intelligently applied surgical interference. How often does one find that a vaccine or serum has been administered as a last hope in fostering the recovery from some serious condition which clearly indicated the early application of such an agent? This method of use is unfair alike to the material and to the person responsible for its application, because he is inclined to attribute the failure to obtain satisfactory results to the material rather than to his method of employing it. Equally disastrous is the indiscriminate use of vaccines or sera on the part of an enthusiastic advocate of their efficacy. It not infrequently happens that one meets with instances where a streptococcus or staphylococcus vaccine has been used in the treatment of a condition due to an entirely different type of organism. In practically every case, the type of vaccine or serum which is to be employed can only be determined by a bacteriological examination of the pathological material, and in most cases this only means a microscopical examination of pus, blood or discharge. Veterinary practitioners, and particularly those in country districts, labour under very grave disabilities. Unlike their medical confreres, they have no local institution to which material may be sent for bacteriological diagnosis, and they are therefore obliged to rely upon their own energy and powers of observation. To-day, there are relatively few practitioners who do not regard a microscope as an essential item of their equipment and who are unable to undertake an average bacteriological examination of pathological material, and so what might, at first sight, appear to be a disadvantage has proved to be a blessing. With regard to the preparation of vaccines and sera, it is obvious that time does not permit of a detailed description of the many modifications of the technique, but I will briefly outline the general principles of their preparation and standardisation.

Vaccines. The terms 'vaccine' and 'vaccination' were first used by Jenner, and in the strict interpretation of their application should refer only to the material and the operation for immunisation against small-pox. The expressions have, however, come into general use, and are now employed to denote practically any preparation of bacterial cells and the application of such a material to the animal body. Americans employ the word 'bacterin' and although it has an unfamiliar sound to the British ears, it is perhaps preferable to 'vaccine'.

Until comparatively recently, a vaccine was a suspension of bacterial bodies to be employed for the purpose of inducing immunity, and briefly such a suspension was prepared as follows :- the infected material having been obtained in such a way as to avoid as much as possible, contamination by non-specific organisms, the next step, and probably the most difficult one in the whole technique, is to prepare pure cultures. An intimate knowledge of the peculiar requirements of different organisms is necessary in order that a medium likely to ensure the maximum amount of growth may be employed. The particular type of organism with which one is dealing may be determined by the examination of the stained smears of the infected material, but it is probably better to prepare primary cultures, in order that one may be able to form some idea of the proportionate numbers of the various types of organisms as they exist in the lesions. For example, an abscess may contain streptococci, staphylococci, and perhaps some saprophytes. In order to obtain the best results from the use of a vaccine in such a case, it is well to know the relative weight of infection by streptococci and staphylococci, and to balance the proportions in the vaccine accordingly. Again, an abscess may be met with which contains a strain of St. Equi, which grows very delicately upon artificial media and requires an addition of horse serum in order to induce a sufficient weight of growth for the purpose of preparing a vaccine. Such points should be ascertained before an attempt is made to grow the organisms on a large scale. Therefore, in the first stage a light smear on the surface of a serum or blood agar plate, or a shake culture in agar or serum agar should be prepared. Secondary cultures may be made from isolated colonies. Cultures which are to be used for the preparation of a vaccine are best made on media such as agar or agar to which blood or serum have been added. Broth, however, may be used if necessary, but the subsequent technique is somewhat complicated. When the maximum degree of growth has been attained, a few c.c. of normal salt solution are poured on to the surface of the culture and the container is re-plugged and agitated in order to obtain a suspension of the growth in the saline. In the case of some organisms, it is necessary to rub the growth off with a sterile platinum loop in order to effect this. The suspension is then removed by means of a sterile pipette and is poured on to the surface of another culture and so on, until the required amount of growth has been taken up. In the case of broth cultures, the medium is centrifuged, the organisms being thus thrown to the bottom of the tube. The broth is then syphoned off, and the bacteria are re-suspended in normal saline solution. Care must be taken in all these processes to ensure freedom from contamination. Suspensions obtained in these ways may contain serum derived from serum or blood media or peptone, and as these might produce unpleasant local reactions when the vaccine is injected, it is always advisable to wash the organisms by centrifuging and re-suspending in normal saline as often as is considered necessary. The final suspension is sterilised. This may be effected in several ways. If by heat, the suspension is placed in a plugged tube or flask in a water-bath, care being taken that the water is above the level of the vaccine. Efficient sterilisation is dependent upon permitting the process to continue at the minimum temperature for the minimum length of time. With the water-bath at 56°C to 60°, sterilisation is nearly always complete in one hour. Culture tests are then put up to ascertain if the vaccine is sterile. For this purpose, relatively large quantities (up to ·5cc.) of vaccine are used and both fluid and solid media are inoculated and incubated for twenty four hours or longer if the organism is one which grows slowly. If there is any growth, the vaccine is re-heated until complete sterility is obtained. Other means of obtaining sterility are by the addition of disinfectants, such as carbolic acid, trikresol, chloroform etc., but there is no definite evidence that they are superior to minimum heating. A sample of the vaccine is then taken for the purpose of counting and for microscopic examination for purity.

Counting may be done by taking equal quantities of the vaccine and human blood, mixing thoroughly and preparing a smear. The relative proportions of bacteria and red cells are ascertained by microscopic examination, and since the number of red cells per c.c. is known, the number of bacteria in a similar volume can be computed. For example, if there are, on an average, two organisms to each red cell, there will be 11,000,000 organisms per c.mm. or 11,000,000,000 per c.c. of the stock vaccine since there are 5,500,000 red cells per c.mm. Direct counting may be done on exactly similar lines to the enumeration of blood cells, or the vaccine may be standardised by comparison with a standard suspension of known concentration. Another matter is to centrifuge the vaccine in a finely graduated sedimentation centrifuge tube and read off the amount of sediment, but for ordinary purposes the first method is probably the most convenient.

The stock vaccine is then diluted to the required strength with sterile salt solution, and ·5 per cent. phenol

is added as a preservative. Sterility tests are again put up, and probably animal experiments are employed to ensnre that the vaccine is not unduly toxic.

Bacterial extracts, autolysates and digested bacteria are sometimes used in place of the ordinary saline suspension, with the object of hastening absorption or of bringing into solution the toxic elements of the bacteria. The reactions are, however, often very severe, and for this reason their use is not very widespread.

Live bacteria are very occasionally employed in a vaccine, the idea being that by an unnatural portal of entry, a local reaction is only produced, and that the unchanged bacteria produce a more vigorous response. There is, of course, always the possibility that should they reach the natural portal, the particular disease may be produced. The use of attenuated living vaccines, as for example, black-leg vaccine, is fairly common in veterinary practice.

Sensitised vaccines are either living or dead suspensions which have been treated with the specific antiserum with the object of preventing local and general reaction in the patient. There is no definite evidence of the superiority of such vaccines over ordinary suspensions in so far as the degree of immunity which is produced is concerned.

Detoxicated vaccines—An attempt has been made to render vaccines of notoriously toxic organisms less poisonous. For this purpose, bacterial cells are first autolysed and the stroma is precipitated and washed. It is as yet uncertain to what extent this method will prove of value in actual practice.

The preparation of immune sera. At the outset, one has to differentiate between anti-toxic sera and anti-bacterial sera, for they differ in their mode of preparation, standardisation and employment.

The former are prepared from the blood of animals, usually horses, which have been hyper-immunised against specific bacterial toxins, and the latter from animals hyper-immunised against the whole bacterial bodies.

Relatively few organisms, so far as is known, produce true extra-cellular toxins. The best known are the diphtheria bacillus, the bacillus of tetanus, malignant œdema, and black-leg, B. œdematiens, B. welchii and B. botulinus. Others produce a definite endotoxin, as for example, the Shiga bacillus of dysentery, and for organisms of these types a specific anti-toxin can be prepared.

In the case of the non-toxin producing organisms, the sera which are employed are bactericidal, and are antagonistic to the bacterial cells themselves.

I will briefly mention typical methods of preparing each type of anti-serum. In the first place, horses which are to be used for the purpose of furnishing serum must be physically sound. Mechanical unsoundness, so long as it does not interfere with the general health of the animal, does not much matter. In all cases the horse should be well nourished, and must be capable of efficiently assimilating his food. Horses which are to be used for this purpose, are tested with mallein and tuberculin, and a small experimental bleeding is taken, and the blood tested for the presence of agglutinating or complement binding antibodies for B. mallei. If all the tests give a negative reaction, the horse is isolated for a short period, usually fourteen days, and if healthy at the end of that period, is ready for his initial dose. In the case of anti-toxin horses the preliminary doses consist of toxin which is neutralised with anti-toxin, or toxin which has been modified in such a way as to render it less poisonous without destroying its antigenic properties. One method of preparing tetanus antitoxin, for example, is to give an initial dose of 5 c.c. of toxin of which 1 c.c. kills 250,000 grammes of guinea-pig in from four to six days together with twice the amount of antitoxin required to neutralise it, double these quantities being given five days later. Another method is to give 5000 units of tetanus antitoxin (one unit, U.S.A. standard is the amount required to neutralise 1,000 m.l.d. of tetanus toxin for a 350 gramme guinea-pig) and then increasing doses of pure toxin. After three doses, by the former method, the antitoxin is discontinued, and slowly increasing doses of toxin only are given until appreciable amounts of antitoxin are found in the blood, and then as rapidly as the horses can tolerate it until each c.c. of serum contains from 300 to 600 or more units of anti-toxin. The horses are then bled, from eight to ten litres being taken at a bleeding, and the serum is drawn off and after careful standardisation and testing for sterility is ready for use.

In the preparation of bactericidal sera, the horses are immunised with saline suspensions of killed or living organisms of known concentration, of autolysates or of digested bacteria. Injections are given intravenously the initial dose being from ·1 to 1 c.c. according to the particular type of organism employed. The subsequent dosage depends upon the degree of temperature and general reaction exhibited after the previous injection. The serum obtained by experimental bleedings is tested from time to time and when the value is found to be sufficiently high, the animal is bled. Whenever possible, animal tests should be employed for determining the titre of the serum, for by this means only can the real value for clinical purposes be determined. It is still customary to use the agglutination test as an indicator of the values of such sera, but while this test may be quite useful in ordinary diagnosis work its use is contraindicated in determining the degree of hyper-immunity, since in many cases the maximum agglutinating titre is reached after relatively few injections, and before the serum has any real protective power. The complement fixation test is probably more reliable but even this falls short of the ideal.

Now, we come to a consideration of the practical employment of these agents. The details which I have enumerated may be of interest, but a consideration of the application of sera and vaccines is of importance.

I have already hinted, that in my opinion at any rate, the use of these materials is much too haphazard. We have to realise that some of the sera, at least, are highly specific, that their neutralising power for a given toxin is as definite as, for example, that of an alkali is for a mineral acid, and we require to have some idea of which type of agent to employ, whether vaccine or serum, and when and how to apply it.

With the use of vaccines, we develop in the animal body an active and more or less lasting immunity, while with the use of a serum we confer a transient passive immunity. Although the immunity following the use of a vaccine is more lasting, it requires an effort on the part of the host to provide the necessary response, and it requires time for that response to be of value and for the specific antibodies to be present in sufficient numbers.

In using a serum, on the other hand, we actually place those antibodies in the animal and they have an almost immediate effect. It is evident, then, that the conditions which we have to treat with these agents fall into two groups, namely, those which are acute, rapid in their course and in which there is not sufficient time to elaborate an active immunity in the patient, and in which the immediate conferring of a passive immunity is indicated, and those which are chronic, giving sufficient time for the elaboration of an active and more lasting immunity. This applies to curative treatment. For prophylaxis one's endeavour should be to promote an active, lasting immunity, and this is done either by means of vaccine, or by a combination of living vaccine together with a protecting dose of the specific serum.

We will consider first the points which have an important bearing upon the administration of the bacterial vaccines. The determination of proper dosage is based

chiefly upon the observation and correct interpretation of clinical signs, such as the degree of temporary depression and evidence of lassitude accompanied and followed by irregularities of temperature and pulse, as well as local reactions at the site of the injection and of the lesion.

Subcutaneous injections are best given on the side of the neck at about the middle, or in the loose tissue behind the elbow in the case of horses and cattle, and inside the thigh or over the abdomen in the case of dogs. Intravenous injections are best made in the jugular of large animals, and into the saphena of dogs and cats, and intramuscular injections into the muscular masses covering the scapula or those of the buttocks. The skin at the point of injection should be painted with tincture of iodine without the previous application of water or soap. If necessary the iodine may be removed after the injection by means of alcohol.

The constitutional effects vary within wide limits. A correct dose may produce within four to six hours a rise in temperature and an accelerated pulse, with loss of appetite and a general air of depression. A mild disturbance of this nature with a rise in temperature which does not exceed 2° F. to 3° F. may be taken as indicating that the dose was approximately correct. Severe constitutional reactions are usually due to excessive dosage, but may sometimes occur after a repetition of a dose that was previously tolerated. The whole secret of success in attaining a suitable response in the process of active immunisation is to "flick" the patient and not to "knock" it.

The local reaction depends upon the individual sensitiveness of the patient and the nature and amount of the inoculum. In the majority of cases, the local reaction varies from a slight reddening of the skin to a relatively small swelling, and only in severe reactions is there any considerable amount of œdema. It is certain that the constitutional reaction should be taken into consideration when determining the size of subsequent doses, and not the local reaction.

When it is possible to observe the focal effects, these should undoubtedly be permitted to serve as a guide to subsequent dosage. In the case of a limited staphylococcus infection, for example, one observes a few hours after the injection of staphylococcus vaccine an increased hyperæmia of the part, and possibly some increase of the swelling and perhaps in the discharge. A slight reaction of this nature is satisfactory evidence of the potency of the vaccine, but a very marked focal disturbance should be avoided.

No definite rules can be laid down concerning the frequency and size of the dosage. Each patient has individual peculiarities and must be treated in the manner which suits it best. It is usually recommended that a vaccine should be administered at intervals of seven days and in certain doses, but that is only a rough guide and is the result of experience in average cases. It is always assumed that the clinician will be guided by his experience and observation of his particular patient. The opsonic index has been almost entirely abandoned as a guide to the dosage, which is now based upon the general condition and the reaction exhibited by the patient. It is always safe to err on the side of inadequate rather than excessive dosage, far less time is lost in working up the quantity than in waiting for several excessive reactions to subside. A small initial dose should be given, and if no reaction occurs a second and larger dose may be given 48 hours later, and so on until a definite reaction is obtained. The dose producing this reaction should be repeated and according to whether the reaction is as great as or less than the previous one, the quantity may be again repeated or increased. As a general rule, the nature of the infection has some bearing upon the size of dose. In acute infections, the dose should be small and may be repeated at frequent intervals, in chronic infections, larger doses may be employed and less frequently. It is undoubtedly preferable to span out the injections too much rather than too little, but as Kolmer points out "the ghost of the negative phase is always too prominent in the minds of the inexperienced."

The foregoing remarks apply almost exclusively to the use of vaccine for curative purposes. In endeavouring to establish prophylactic immunity, it is very often impossible to note the constitutional response, owing to the fact that herds, flocks or studs are being so treated, and in this case a more or less standard form of dosage must be adhered to. Where, however, individual peculiarities can be taken into account, it should certainly be the rule so to do.

Certain general rules apply also in the case of the administration of serum. In acute infections and certainly where the disease has become septicæmic, and in general intoxications, the serum must be given intravenously. As I have already pointed out, the injection of serum places the already prepared antibodies directly into the patient's tissues, and unless the infection is strictly localised or of a decidedly chronic nature, it frequently happens that there is insufficient time for these antibodies to be absorbed from the site of a local injection and to become disseminated throughout the body. In the case of superficial lesions, the direct application of serum, either dried or in the fluid state, to the lesion itself either alone or in addition to a general application, is often practised, and beneficial effects are frequently observed. When serum is used for prophylactic purposes, the subcutaneous method of injection is as good as any other.

There is one great advantage in treating horses with serum as compared with other animals—that the injection of the homologous serum does not produce serum-sickness. It is possible to inject horses intravenously with 500 cc. or even more without producing any ill-effects, but all intravenous injections of such a volume should be carried out very slowly; and in cold weather it is sometimes advisable to warm the material to a little above body temperature in order to avoid shock. In the case of dogs and cats, it sometimes happens that there is evidence of serum-sickness or anaphylaxis marked by a reddening of the skin around the site of injection, which may spread and form blotches on other parts of the body. Following the intravenous injection of the intoxicating dose of serum, there may be great restlessness, prostration, vomiting, tenesmus and the involuntary discharge of fæces and urine, but death, unless from secondary causes, occurs comparatively rarely. A preliminary subcutaneous injection of 10 cc. of horse serum, followed after an interval of from 3—6 weeks by an intravenous injection of a few cc. will very often produce anaphylactic symptoms. It is well, therefore, to give small doses at frequent intervals (a few days) and if a lengthy spacing cannot be avoided, to select the subcutaneous rather than the intravenous method for the later dose.

The administration of tetanus antitoxin requires some consideration. I think there is now no question of its value in preventing symptoms of the disease but owing to the peculiar affinity of tetanus toxin with nervous matter, and the rapidity with which the linking up takes place, treatment by means of antitoxin is a very uncertain procedure. I think it may safely be said that the administration of tetanus antitoxin should never be withheld in a case of tetanus. It certainly cannot break down the union of the toxin and the nervous matter, but it can neutralise free toxin in the body, and so prevent any further nervous destruction. It is equally certain that it should be given as soon as possible after the first evidence of symptoms of tetanus, and administration by the intravenous method is clearly indicated.

In the case of infection with other anærobes, such as the vibrion septique, the antitoxin should, I think, be injected around the margin of the lesion as well as intravenously.

I quite realise the incomplete and scrappy nature of these remarks, and if I can supplement them in any way, I am entirely at your disposal.

Mr. MALE thanked Mr. Buxton for giving them such a splendid paper. It must have entailed a great deal of work, though not difficult work for him because he was evidently master of his subject. He (Mr. Male) quite agreed with Mr. Buxton's opening remark, that there is a tremendous lot of empiricism with regard to vaccines and sera. They read accounts in the veterinary papers of the wonderful cures and when they got a bad case they were inclined to try them. He had tried them on a good many cases and personally he could not say he had had very good results, possibly because he did not use the corresponding serum to the particular germ affecting the animal, but that was the fault of the distributing agents who claimed that they would alleviate a long list of diseases whereas, as the essayist said, they can only be regarded as adjuncts to intelligent surgical interference.

He thought they should have more definite information. The whole subject was such a large one that it was difficult to discuss it in a general way. Personally he would have liked to have heard Mr. Buxton's experience on the various vaccines and sera as applied to special diseases which they met with in practice. For example, vaccine used as a preventive of abortion in cattle. He had used that for a number of years for cattle, and could not speak too highly of it. The percentage of abortion in cows after its use was very small. They had at times local reactions, and he enquired into the cause of these and he was told that abortion vaccine was very liable to infection with pyogenic organisms in which case an abscess formed, there was constitutional disturbance, the cattle got thin and went off milk for a time. If the vaccine was exposed to the air it might become infected. Personally, he never used a bottle after he had opened it once He would like to hear Mr. Buxton's views about swine fever vaccine and serum. He had been asked whether he advised vaccine for a herd of pedigree pigs, and he advised that they should not be vaccinated.

He did not know whether Mr. Buxton had any experience of American vaccine material. They spoke very highly of it in the States. The objection to vaccine was that in some batches inoculated a large proportion had the disease rather badly and some died, whereas in others a permanent immunity was obtained without much constitutional disturbance.

The serum results were excellent, and he has no hesitation in recommending it in all cases where swine fever was prevalent. The unfortunate part about it was that the immunity was brief. With regard to antitetanic serum he had never been able to recognise any benefit from its use when the symptoms were well developed, though Mr. Buxton appeared to think it neutralised a good deal of the toxin circulating in the body.

Mr. COLEMAN thanked Mr. Buxton very much for his illuminating paper, which was far too deep for general practitioners to be able to discuss with any degree of controverting anything he said.

Mr. HEWER asked for a few tips as to the means of collecting material to send away for examination. Was it good enough to take it in a bottle specially cleaned out? Anti-tetanus he considered invaluable and he used it with quite good results during service in Mesopotamia where there were a fair number of lockjaw cases. He gave very big doses of serum and a large number of the cases recovered.

Mr. MALE asked Mr. Buxton if he had any faith in the injection of polyvalent antistreptococcus vaccine into a mare before foaling to prevent joint-evil. It was very highly recommended by some firms.

REPLY.

Mr. BUXTON thanked Mr. Male for his appreciative remarks, and entirely agreed with him in his objection to the practice of recommending any vaccine or serum as a cure-all. Nothing could be more injurious to the successful application of these products than that they should be regarded as anything but specific therapeutic agents. It must always be remembered, however, that a mixed vaccine or polyvalent serum might be used with advantage in a variety of pathologic conditions which were produced by different strains of the same variety of organism.

The beneficial effects attending the use of abortion vaccine noted by Mr. Male were now generally appreciated. He (Mr. Buxton) was not aware that abortion vaccine was unduly liable to contamination with pyogenic organisms, but it must be remembered that when a large or very active dose of vaccine was administered subcutaneously, there was very probably a temporary lowering of the resistance of the skin, and consequently an increased risk of infection of the area by the pyogenic organisms commonly present on the surface.

As to the prevention of swine fever, as Mr. Male had observed, one was here faced with the usual difficulty when an attempt was made to induce an active immunity by means of a virulent virus. The alternative, of course, was to confer a passive immunity by means of serum, but such an immunity, although demanding no effort on the part of the patient and producing a rapid effectiveness, was of short duration. It might so happen that animals protected in this way become subsequently exposed to infection, in which case it was exactly similar to the mixed method of producing an active and lasting immunity (i.e. the use of serum and virus). Dr. Hackett (Cornell Veterinarian Vol 9, No. 4) had recently stated that during the last six years Minnesota had reduced the loss of pigs from 19% to 2·2% and published an interesting table showing that of apparently healthy pigs treated by serum alone 4·1%, and by the simultaneous method 3·7% died of swine fever, while of pigs which were ailing at the time of treatment those that received serum only showed a mortality of 28·8% and those injected with serum and virus a mortality of 29·1%.

In connection with tetanus antitoxin, Mr. Buxton agreed with Mr. Male that once the symptoms of tetanus were well established, the administration of antitoxin would probably have but little beneficial effect. It had to be remembered, however, that the tetanus bacilli in the tissues were continually elaborating their toxin, and that consequently so long as there was any chance of the animal recovering from the lesions already produced in the tissue of the central nervous system, good treatment demanded the administration of antitoxin in order that free toxin might be neutralised before it had an opportunity of linking up with and destroying more nervous matter. If the antitoxin was to have any opportunity of producing a beneficial effect, it must be administered with as little delay as possible after the first signs suspicious of tetanus, and preferably by the intravenous method.

In reply to Mr. Hewer, Mr. Buxton pointed out that the pathological material must be collected in such a way as to eliminate the risk of contamination by other organisms, and the container must be bacteriologically clean.

Mr. SIMPSON proposed a hearty vote of thanks to Mr. Buxton for giving such an instructive paper. It was very nice for a secretary to be able to write to a gentleman and have him come forward as willingly as Mr. Buxton had done when asked to read a paper. He

trusted that on some future occasion Mr. Buxton would be able to give them another paper equally instructive and interesting as the one he had given them that day.

The vote was carried by acclamation.

In reply Mr. Buxton said that if the paper had afforded them as much pleasure as it gave him to prepare it he was amply repaid.

Mr. S. H. PETTIFER produced a calf found in a cow after it was killed. The cow was supposed to be barren. It was put to bull about three years ago. The calf was in a mummified condition and had lain in the cow for three years.

On the proposition of Mr. Buxton, Mr. Pettifer was heartily thanked for producing this interesting specimen.

A vote of thanks to the President concluded the proceedings.

THANKS TO ELECTORS.

Dear Sir,—May I claim the necessary space in your journal to express my sincere thanks to all the members of the profession, who were interested in its welfare, to record their vote in my favour and assist me to be returned a member of the Council, where, I trust, I shall merit the confidence they have shown from their support.

Assuring them of my best endeavours and service.

Yours faithfully,

G. H. LOCKE, M.R.C.V.S.

June 7, 1920.

"A SERIOUS QUESTION."

Are we going to let the Veterinary Department of the Ministry of Agriculture run the veterinary profession? I have a large country practice and have held the confidence for a number of years of some of the most extensive breeders of pedigree stock in England. Should a contagious and infectious disease occur on any of my clients' farms my opponent is called in and I am simply ignored. I have examined a number of stallions for soundness every year—the M. of A. now say that they must be examined by my opponent (veterinary inspector). I may say that when I examine a stallion my certificate is printed on the Horse's card. When farmers are using a horse they generally have a good look round before doing so. A veterinary surgeon wants to be very careful in giving a certificate (that's if he thinks anything of his reputation). I have seen horses that hold the M. of A. certificate rejected at our local shows for unsoundness—how do you account for this?

I had a number of shorthorns for tuberculosis, I suppose shortly the M. of A. will send my opponent to do this work

What with motors, tractors, Day Son and Hewett by Royal appointment Veterinary Medicine producers, and the Ministry of Agriculture, I am of opinion that it is a bit of odds on the M. of A. doing the veterinary profession the most damage.

I had a Medical Officer of Health dining with me last night and I brought this question up. He was simply staggered, he informed me that the medical profession would not tolerate it for one second.

I have a friend who has a very extensive practice and he tells me that when he has a contagious and infectious disease the M. of A. sends a man 40 and sometimes 60 miles to do the work.

I can only say that something must be done at once to put a stop to this degrading and unprofessional conduct. The profession is too small, and not remunerated to stand it.

"DISGUSTED."

SUBSCRIPTIONS TO R.C.V.S.

The Secretary of the Royal College of Veterinary Surgeons begs to acknowledge the receipt of the following subscriptions for 1920.

Beaumont, E., Bishop's Castle	£1	1	0
Conder, Capt. C. S., R.A.V.C.	1	1	0
Hepburn, W., Aberdeen	1	1	0
Lewis, R. Landford, Denbigh	1	1	0
Linton, Prof. R. G., Edinburgh	1	1	0
Litt, W., Whitehaven	1	1	0
Mills, Capt. J. J., R.A.V.C.	1	1	0
Tait, J. W., Boroughbridge (additional)		10	6
Watkins, Capt. G. F., R.A.V.C. 1917-20	4	4	0
Previously acknowledged	818	1	5
June 9.	£830	2	11

R.C.V.S. WAR MEMORIAL.

The Secretary begs to acknowledge the receipt of the following donations, or promises of donations:—

Jelbart, Capt. E. E., M.C.,	1	1	0
Conder, Capt. C. S.,	1	1	0
Bowes, Lt. Col. H. G.,	3	3	0
Linton, Prof. R. G.,	1	1	0
Previously reported	609	11	0
	£615	17	0

WAR HONOURS.

Buckingham Palace, June 8.

The King held an Investiture in the Quadrangle of the Palace at 11 o'clock.

The following were severally introduced into the presence of The King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE.

OFFICERS—(MILITARY DIVISION)

* * * * *

Major Edward Franklin.

The King has granted to the following gentlemen authority to wear Decorations (as stated against their respective names), which have been conferred upon them in recognition of valuable services:—

EGYPTIAN ORDER OF THE NILE.

(FOURTH CLASS).

* * * *

Capt. J. J. M. Soutar.

ARMY VETERINARY SERVICE

Extracts from *London Gazette*

REGULAR FORCES. ROYAL ARMY VETERINARY CORPS.

WAR OFFICE, WHITEHALL, May 26.

Maj. E. C. Orton is placed temp. on the h.p. list on account of ill-health contracted on active service (May 27); Capt. F. B. Ditmas, T.F., relinquishes the actg. rank of Maj. on ceasing to hold the appt. of D.A.D.V.S. (Feb. 14).

TERRITORIAL FORCE.

May 26.

Capt. H. E. Jackson resigns his commn. (May 27), and retains the rank of Capt.

INDIA OFFICE, JUNE 1.

DIR. VET. SERVICES.—Maj.-Gen. J. Moore, C.B., C.M.G., F.R.C.V.S., (June 9, 1919).

DIR. VET. SERVICES.—Brig.-Gen. C. E. Nuthall, C.B., C.M.G., (June 8, 1919)

Veterinary Societies—Addresses.

Border Counties V.M.S.
Pres: Mr. H. Barrow, M.R.C.V.S., Ireby, Carlisle
Hon. Sec: Mr. R. Craig Robinson, M.R.C.V.S., Carlisle
Meetings, Second Friday of Feb., June, and October

Derbyshire V.A.
Pres. Mr. A. Levie, F.R.C.V.S., Derby.
Sec: Mr. F. T. Prince, M.R.C.V.S., Ashbourne.

Dumfries and Galloway V.M.A.
Pres: Mr. T. M. M'Connell, Wigtown.
Hon. Sec: Mr. N. H. McAlister, Kirkcudbright.

Glasgow V.M.S.
Hon. Sec. Mr. John S. Keane, 11 Falkland Mansions, Kelvinside

Royal Veterinary College V.M.A.
Pres. Capt. J. T. Edwards, B.SC., M.R.C.V.S.
Treas: E. S. Shave, Esq., F.R.C.V.S., M.R.C.S.
Sec: Mr. B. Gorton, M.R.C.V.S. *Asst. Sec*. C. W. Heane.

Mid-West and South Wales V.A.
Pres: Mr. W. Scott, F.R.C.V.S., Bridgwater, Somerset.
Hon. Sec. & Treas. Mr. J. J. Aveston, M.R.C.V.S., Henrietta Street, Bath.

National Association of Veterinary Inspectors
Pres: Major J. Abson, F.R.C.V.S., Sheffield
Hon. Sec: Mr. Trevor Spencer, M.R.C.V.S., Kettering

Association of Veterinary Officers of Health
Pres: Mr. T. Douglas, M.R.C.V.S., Kilmarnock
Hon, Sec. & Treas. Mr. A. M. Trotter, M.R.C.V.S., Moore Street, Abattoir, Glasgow

Munster Veterinary Inspectors' Association
Pres: Mr. D. M. Barry, M.R.C.V.S., Mallow
Hon. Sec: Mr. J. F. Mahony, M.R.C.V.S., Caroline St., Cork

National Veterinary Benevolent & Mutual Defence Society.
Pres: Mr. W. A. Taylor, F.R.C.V.S., Brick-st, Manchester
Hon. Sec: & *Treas*: Mr. G. H. Locke, M.R.C.V.S. Grosvenor Street, Oxford-st., Manchester

Victoria Veterinary Benevolent Fund.
Pres. Mr. S. H. Slocock, F.R.C.V.S., Montague Rd, Hounslow
Hon. Secs. Mr. P. J. Kelland, M.R.C.V.S.
Mr. Fred Bullock, F.C.I.S.
10 Red Lion Square, London, W.C. 1.

Personal.

MERTON—JONES.—On the 26th May, by licence, at St. Mark's, Hamilton Terrace, by the Rev. A. V. Magee, Vicar, Harold Francis John, only son of Harry George Merton, of Dudley Mansions, Abbey Road, London, N.W., 8, to Dilys, youngest daughter of Richard Jones, M.R.C.V.S., of Pall Mall, Towyn, Merioneth.

DAWSON—SALL. At Kisumu, British East Africa, on 22nd April, by the Rev. P. H. Lees, James M. Dawson, M.R.C.V.S., Bukoba, Tanganyika Territory, to Violet, daughter of the Rev. G. W. Sall, Lowestoft.

OBITUARY.

THOMAS GREEN, "Existing Practitioner", Hucknall Torkard, Notts.
Mr. Green died on May 24th., aged 77.

DISEASES OF ANIMALS ACTS 1894 TO 1914, SUMMARY OF RETURNS.

Period.		Rabies. Cases Confrmd Dogs	Rabies. Cases Confrmd Other Anmls	Anthrax Out-breaks (a)	Anthrax Animals.	Foot-and-Mouth Disease. Out-breaks (a)	Foot-and-Mouth Disease. Animals.	Glanders.† Out-breaks (b)	Glanders.† Animals.	Parasitic Mange. Out-breaks (b)	Parasitic Mange. Animals.	Sheep Scab. (b)	Swine Fever. Out-breaks (a)	Swine Fever. Slaughtered. *
GT. BRITAIN. Week ended June 5				4	4	4	1016			64	95	1	49	32
Corresponding week in	1919	6		3	3			1	1	108	219	1	70	38
	1918			3	4			1	2	100	156	1	31	14
	1917			8	8				1	49	84	2	54	28
Total for 23 weeks, 1920		4		211	248	46	3448	10	17	2486	4279	285	1055	400
Corresponding period in	1919	104	3	91	121	19	1033	13	39	3167	6193	213	789	325
	1918			135	152			16	44	2761	5274	236	564	191
	1917			260	316			13	24	1457	2975	375	1255	527

(a Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked :—
Board of Agriculture and Fisheries, June 8, 1920 Excluding outbreaks in army horses.

IRELAND. Week ended June 5.			...	...	...	...			Outbreaks 2	2		7
Corresponding Week in	1919	...	...	...	...	...	...	...	5			2
	1918	...	...	...	...	...	...	...	1	3		1
	1917	...	...	...	...	...	...	...	1	2		12
Total for 23 weeks, 1920			1	...	...	...	1	...	69	148		16
Corresponding period in	1919	...	...	...	...	...	1	...	79	150		59
	1918	...	1	...	...	...	...	...	69	167		28
	1917	...	8	...	...	...	1	...	24	214		881

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, June 7, 1920
NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection.